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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
08/741,597	11/01/1996	RICHARD M. WIESMAN	FM-147J	1419

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06/13/2003

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WALTHAM, MA 02154

EXAMINER

GOINS, DAVETTA WOODS

ART UNIT

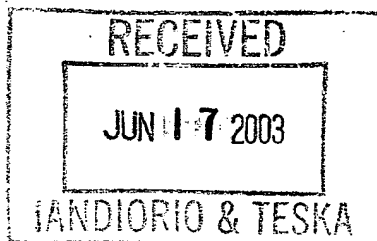
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2632

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Please find below and/or attached an Office communication concerning this application or proceeding.



Office Action Summary

Application No.

08/741,597

Applicant(s)

WIESMAN ET AL.

Examiner

Davetta W. Goins

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 38-67 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 38-67 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 38, 39, 41-57, 63, 64, and 67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lau et al. (US Pat. 5,565,783).

In reference to claims 38, 54, 55, Lau discloses 1) the claimed means for generating communication signals at a first location for transmission on a powerline, which is met by an overhead fault sensor 1 consisting of a housing 4 made of molded or extruded plastic; the housing 4 includes a transceiver 3 used for receiving and transmitting signals on a power line to a remote location (col. 5, lines 48-67; col. 6, lines 1-36; col. 10, lines 3-29, Figure 1, 2, 9), 2) the claimed means for reactively coupling the communication signals to the powerline, which is met by the a capacitively coupled voltage sensor 14 and a pickup current coil 12 molded at a precise location in the housing 4 (col. 6, lines 8-16), and 3) the claimed means for receiving the communication signals at a second location, which is met by the fault sensor device 1 capable of receiving and transmitting signals with the powerline 2 to a ground station communication equipment antenna 30 (col. 10, lines 13-29). Although Lau does not specifically disclose the claimed coupling the communication signals to the powerline without tapping the powerline, he does disclose a housing 4 made of molded or extruded plastic with a clamp assembly 5 centrally located for holding the device firmly to an overhead power line 2. The "lower jaw" of the clamp

assembly 5, made of metal, moves as an eyescrew to turn the clamp on to the power line 2. Yet, the clamp assembly 5 is "molded" into the housing 4, as well as the eyescrew entering the "plastic" housing (col. 5, lines 48-67; col. 6, lines 1-16). Johnson discloses a "connectionless" signal detection device for conductive cables; the connectionless signal detection device is placed on the conductive cable using an elongated alignment channel to correctly position the magnetic core assemblies concentrically around the conductive cable. The elongated alignment channel is closed, bringing the two magnetic core assembly sections together, separated by a gap at both mating surfaces, and properly aligning the cable for maximum "inductive coupling" with the magnetic core assembly (col. 3, lines 25-35). Since Lau teaches the use of a plastic housing containing a "reactive coupling" (capacitively coupling) to sense and transmit signals about the power line to a remote location, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teaching of coupling the communication signals to the powerline without tapping, as disclosed by Johnson, with the system of Lau, to provide a nonintrusive detection of signals on the powerline that won't interrupt the power on the power lines.

In reference to claim 39, Lau discloses the claimed means for generating includes a first communications device, which is met by transceiver 3 (col. 6, lines 8-16; col. 10, lines 13-29).

In reference to claims 41, 43-45, Lau discloses the claimed means for inductively coupling includes a communications core element disposed about the powerline and a plurality of windings disposed about the communications core element for coupling the communication

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signals to the powerline, which is met by windings of the current transformer 18 in an underground fault sensor 17 for an underground power line 2 (col. 6, lines 53-67; col. 8, lines 4-32).

In reference to claim 42, Lau discloses the claimed means for reactively coupling includes an inductor, which is met by current sensing coil 12 (col. 6, lines 8-16).

In reference to claim 46, Lau discloses the claimed means for extracting from the powerline the communication signals transmitted from the second location, which is met by the ground station communication station antenna 30 including either a transceiver or a SCADA RTU 23 which receives the information from the fault sensor devices 1 and 17 as well as each fault sensor devices 1 and 17 including a transceiver 3 capable of both transmitting as well as receiving information from the ground station communication equipment antenna 30 (col. 10, lines 13-62).

In reference to claims 47, 48, Lau discloses the claimed means for extracting includes the means for reactively coupling from the powerline the communication signals transmitted from the second location, which is met by the ground station communication station antenna 30 including either a transceiver or a SCADA RTU 23 which receives the information from the fault sensor devices 1 and 17 as well as each fault sensor devices 1 and 17 including a transceiver 3 capable of both transmitting as well as receiving information from the ground station communication equipment antenna 30 (col. 10, lines 13-62). The fault sensor device 1 including

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a capacitively coupled voltage sensor 14 and a pickup current coil 12 molded at a precise location in the housing 4 (col. 6, lines 8-16).

In reference to claim 49, Lau discloses the claimed means for inductively coupling includes a communications core element disposed about the powerline and a plurality of windings disposed about the communications core element, which is met by the power line 2 inducing voltage and current in the windings of the current transformer 18 (col. 8, lines 4-32).

In reference to claim 50, Lau discloses the claimed means for encoding the communication signals, which is met by central microprocessor 11 capable of determining the sensor identification number and event information transmitted and received by the radio transceiver 3 (col. 6, lines 37-52; col. 7, lines 5-34).

In reference to claim 51, Lau discloses the claimed means for inductively coupling further including driver means for providing low voltage, high current pulses of the communication signals to the plurality of windings to inductively couple the pulses to the powerline, which is met by transistor 24 (col. 7, lines 58-67).

In reference to claim 52, Lau discloses the claimed storage device proximate the first location, which is met information is stored in RAM of the fault sensor device (col. 7, lines 5-23).

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In reference to claim 53, Lau discloses the claimed means for transmitting the communications signals to the storage device, which is met by transceiver 3 used for receiving and transmitting signals from the data receiving and control facility (col. 7, lines 5-23).

In reference to claim 56, Lau discloses 1) the claimed sensor for sensing a condition of a powerline, which is met by which is met by an overhead fault sensor 1 consisting of a housing 4 made of molded or extruded plastic; the housing 4 includes a transceiver 3 used for receiving and transmitting signals on a power line to a remote location (col. 5, lines 48-67; col. 6, lines 1-36; col. 10, lines 3-29, Figure 1, 2, 9), 2)the claimed base station remote

from the sensor, which is met by ground station 29 (col. 10, lines 13-29), 3)the claimed means for reactively coupling a signal from the sensor onto the powerline for transmission on the remote base station, which is met by the a capacitively coupled voltage sensor 14 and a pickup current coil 12 molded at a precise location in the housing 4 (col. 6, lines 8-16), and 4)the claimed means for reactively coupling the signal transmitted on the powerline from the powerline to the remote base station, reactively coupling a signal generated by the base station onto the powerline, and reactively coupling the signal on the powerline from the base station to the sensor, which is met by the capacitively coupled voltage sensor 14 and pickup current coil 12 used to pick up signals from the power line upon the transceiver 3 receiving a signal from a ground station (col. 6, lines 8-16; col. 8, lines 37-51).

In reference to claims 57, 67, Lau discloses 1) the claimed plurality of modular core elements for disposing about an a.c. powerline, which is met by a plurality of fault sensors 1, located in

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housing 4, placed on power line 2 (col. 6, lines 8-36; Figure 9), 2) the claimed winding layer to be energized by the a.c. powerline, including a plurality of windings disposed about each modular core element, wherein the windings are interconnected, which is met by windings of the current transformer 18 (col. 8, lines 4-21), 3) the claimed means for sensing a condition in or about the a.c. powerline, which is met by capacitively coupled voltage sensor 14 and a pickup current coil 12 (col. 6, lines 8-16), and 4) the claimed controller means, which is met by microprocessor 11 (col. 6, lines 37-63). Although Lau does not specifically disclose the claimed coupling the communication signals to the powerline without tapping the powerline, he does disclose a housing 4 made of molded or extruded plastic with a clamp assembly 5 centrally located for holding the device firmly to an overhead power line 2. The "lower jaw" of the clamp assembly 5, made of metal, moves as an eyescrew to turn the clamp on to the power line 2. Yet, the clamp assembly 5 is "molded" into the housing 4, as well as the eyescrew entering the "plastic" housing (col. 5, lines 48-67; col. 6, lines 1-16). Johnson discloses a "connectionless" signal detection device for conductive cables; the connectionless signal detection device is placed on the conductive cable using an elongated alignment channel to correctly position the magnetic core assemblies concentrically around the conductive cable. The elongated alignment channel is closed, bringing the two magnetic core assembly sections together, separated by a gap at both mating surfaces, and properly aligning the cable for maximum "inductive coupling" with the magnetic core assembly (col. 3, lines 25-35). Since Lau teaches the use of a plastic housing containing a "reactive coupling" (capacitively coupling) to sense and transmit signals about the power line to a remote location, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teaching of coupling the communication signals to

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the powerline without tapping, as disclosed by Johnson, with the system of Lau, to provide a nonintrusive detection of signals on the powerline that won't interrupt the power on the power lines.

In reference to claim 63, Lau discloses the claimed means for reactively coupling includes an inductor, which is met by which is met by current sensing coil 12 (col. 6, lines 8-16).

In reference to claim 64, Lau discloses the claimed inductor including a plurality of current measurement windings wound about a separating material disposed about the powerline, which is met by the pickup current coil 12 molded at a precise location in the housing 4, which is made of plastic (col. 5, lines 48-67; col. 6, lines 1-16).

3. Claims 58-62, 65, 66 rejected under 35 U.S.C. 103(a) as being unpatentable over Lau in view of Johnson as applied to claims 57 and 64 above, and further in view of Abraham (US Pat. 5,559,377).

In reference to claims 58, 65, and 66, although Lau does not disclose the claimed modular core elements are formed of highly permeable ferromagnetic material, low magnetic permeability, or a material of foam, he does disclose that the air-gap is filled with resin which permeability, or a material of foam, he does disclose windings of the current transformer 18 positioned to pick up signals from the power line 2 (col. 8, lines 4-32). Abraham discloses a transformer coupling circuit including an air-gap is filled with resin which insulates the AC current from the

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transceiver coupling means 14, 22 is of a magnetic coil 64 (col. 2, lines 16-28 and col. 14, lines 19-31). Since Lau discloses a housing including a transformer placed in a plastic molding such that it's not touching the power line, it would have been obvious to one of ordinary skill in the art at the time of the invention to use highly permeable ferromagnetic material around the core, such as the air-gap disclosed by Abraham, with the system of Lau, to allow the magnetic signals to safely be transferred through the housing of the core elements to and from the powerline.

In reference to claim 59, Lau discloses the claimed windings of each of the modular core elements are interconnected electrically in series or in parallel, which is met by current transformer 18 and 12 (Figures 4B and 5B).

In reference to claim 60, although Lau does not disclose the claimed plurality of windings are energized by non-contacting transformer action with the a.c. powerline, he does disclose a housing 4 made of molded or extruded plastic with a clamp assembly 5 centrally located for holding the device firmly to an overhead power line 2. The "lower jaw" of the clamp assembly 5, made of metal, moves as an eyescrew to turn the clamp on to the power line 2. Yet, the clamp assembly 5 is "molded" into the housing 4, as well as the eyescrew entering the "plastic" housing (col. 5, lines 48-67; col. 6, lines 1-16). Johnson discloses a "connectionless" signal detection device for conductive cables; the connectionless signal detection device is placed on the conductive cable using an elongated alignment channel to correctly position the magnetic core assemblies concentrically around the conductive cable. The elongated alignment channel is closed, bringing the two magnetic core assembly sections together, separated by a gap at both mating surfaces, and properly aligning the cable for maximum "inductive coupling" with

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the magnetic core assembly (col. 3, lines 25-35). Since Lau teaches the use of a plastic housing containing a "reactive coupling" (capacitively coupling) to sense and transmit signals about the power line to a remote location, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teaching a non-contacting transformer, as disclosed by Johnson, with the system of Lau, to provide a nonintrusive detection of signals on the powerline that won't interrupt the power on the power lines.

In reference to claims 61 and 62, Lau discloses the claimed sensing a condition including means for sensing voltage and current of the a.c. powerline, which is met the a capacitively coupled voltage sensor 14 and a pickup current coil 12 molded at a precise location in the housing 4 (col. 6, lines 8-16).

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Davetta W. Goins whose telephone number is 703-306-2761. The examiner can normally be reached on Mon-Fri with every other Fri. off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, (acting SPE) Daniel Wu can be reached on 703-308-6730. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-7666.

Davetta W. Goins

D.W.G.
June 9, 2003

Davetta W. Goins
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